

### **In the Specification**

***Kindly replace Paragraph [0001] on Page 1 as follows:***

#### **BACKGROUND**

##### **1. Technical Field of the Invention**

[0001] This ~~invention~~ disclosure relates to hot-rolled steel strips for high strength electric resistance welding pipes and manufacturing methods thereof, in which the hot-rolled steel strips have superior low temperature toughness and weldability and are suitable starting materials for forming line pipes, oil well pipes, and the like.

***Kindly replace Paragraph [0015] on Page 4 as follows:***

#### **SUMMARY OF ~~THE INVENTION~~**

[0015] The hot-rolled steel strip ~~of the invention~~ can be manufactured at a low cost without constructing new facilities and increasing cost and is preferably used for forming high strength electric resistance welding steel pipes.

***Kindly replace Paragraph [0016] on Page 4 as follows:***

[0016] In accordance with one aspect ~~of the invention~~, a hot-rolled steel strip comprises: on a mass percent basis, about 0.005 to about 0.04% of C; about 0.05 to about 0.3% of Si; about 0.5 to about 2.0% of Mn; about 0.001 to about 0.1% of Al; about 0.001 to about 0.1% of Nb; about 0.001 to about 0.1% of V; about 0.001 to about 0.1% of Ti; about 0.03% or less of P; about 0.005% or less of S; about 0.006% or less of N; at least one selected from the group consisting of about 0.5% or less of Cu, about 0.5% or less of Ni, and about 0.5% or less of Mo; and the balance being Fe and incidental impurities. In the hot-rolled steel strip described above, P<sub>cm</sub> represented by the following equation (1) is 0.17 or less:

$$P_{cm} = (\%C) + (\%Si)/30 + ((\%Mn) + (\%Cu))/20 + (\%Ni)/60 + (\%Mo)/7 + (\%V)/10$$

Equation (1),

in which (%M) indicates the content of element M on a mass percent basis, and the hot-rolled steel strip is composed of bainitic ferrite as a primary phase at a content of about 95 percent by volume or more.

***Kindly replace Paragraph [0020] on Page 5 as follows:***

[0020] According to another aspect of the invention, a method for manufacturing a hot-rolled steel strip having superior low temperature toughness and weldability for high strength electric resistance welding pipe, comprises: heating a steel slab having one of the compositions described above to about 1,000 to about 1,300°C; performing finish rolling of the heated steel slab to form a steel strip; completing the finish rolling under the condition in which the steel strip has a surface temperature of about ( $A_{r3} - 50^{\circ}\text{C}$ ) or more; starting cooling immediately after the completion of the finish rolling; and coiling the steel strip at a temperature of about 700°C or less for slow cooling.

***Kindly replace Paragraph [0021] on Page 5 as follows:***

[0021] As described above, ~~according to the invention~~, as starting materials for forming high strength electric resistance welding steel pipes, instead of the steel plates which have been primarily used for this purpose, hot-rolled steel strips having high strength and superior toughness of weld portions can be provided at a low cost and can be significantly effectively used in the industrial fields.

***Kindly replace Paragraph [0023] on Page 5 as follows:***

DETAILED DESCRIPTION

[0023] Selected aspects of the steel ~~composition of the invention~~ compositions are described below.

In the embodiments selected for illustration herein, “%” used for components indicates “mass %”, unless otherwise stated.

C: about 0.005 to about 0.04%

***Kindly replace Paragraph [0034] on Page 8 as follows:***

[0034] ~~In this invention, the~~ The cooling rate after hot rolling must be controlled to a certain extent to stably obtain bainitic ferrite since the hardening properties are controlled by the lower carbon content. Hence, the following elements are used to complement the hardening properties and prevent generation of pearlite and polygonal ferrite which tend to be formed during slow cooling.

At least one selected from the group consisting of Cu: about 0.5% or less; Ni: about 0.5% or less, and Mo: about 0.5% or less

***Kindly replace Paragraph [0043] on Page 11 as follows:***

[0043] Next, the steel microstructure ~~of the invention~~ will be described.

Bainitic Ferrite: about 95 percent by volume or more

***Kindly replace Paragraph [0049] on Page 12 as follows:***

[0049] The relationship between the Nb precipitation ratio and the mother material CTOD is shown in Fig. 2. Two types of steel, that is, steel 1 and steel 2 were used for this evaluation and both were ~~within the scope of the invention~~ acceptable. Hence, in Fig. 2, steel 1 and steel 2 are not discriminated from each other. The chemical composition of steel 1 includes, on a mass percent basis, 0.011% of C, 0.22% of Si, 1.45% of Mn, 0.045% of Nb, 0.075% of V, 0.01% of Cu, 0.01% of Ni, and the balance being Fe and incidental impurities. The chemical composition of steel 2

includes, on a mass percent basis, 0.028% of C, 0.24% of Si, 1.62% of Mn, 0.048% of Nb, 0.071% of V, 0.01% of Cu, 0.01% of Ni, and the balance being Fe and incidental impurities.

***Kindly replace Paragraph [0061] on Page 15 as follows:***

[0050] Fig. 4 shows the relationship between the coiling temperature (hereinafter referred to as "CT" in some cases) and the Nb precipitation ratio. It is understood that the Nb ~~precipitation~~ precipitation ratio is proportional to CT. When CT is more than about 700°C, the Nb precipitation ratio becomes more than about 80%. Hence, CT is preferably controlled to be about 700°C or less to obtain superior toughness. In particular, CT is preferably set to about 600°C or less.

***Kindly replace Paragraph [0066] on Page 16 as follows***

[0066] In contrast, according to steels I to R, which were outside ~~the invention~~ our conditions, a desired toughness could not be obtained.

***Kindly replace Paragraph [0072] on Page 17 as follows:***

[0072] According to our examples (steels T to X) ~~of the invention~~, it was found that the steel microstructure is composed of bainitic ferrite as a primary phase in which  $\alpha B \geq 95$  percent by volume is satisfied; the strength is high such that  $YS \geq 652$  MPa is satisfied; and the toughness of the mother material and the weld portion are superior, each having a CTOD value of 0.28 mm or more.

***Kindly replace Paragraph [0073] on Page 17 as follows:***

[0073] In contrast, according to steel Y, since Pcm and the amount of Ca were outside the appropriate region ~~of this invention~~, the CTOD value of the weld portion was low, and the cleanness of steel was degraded by excessive addition of Ca. Consequently, a desired toughness could not be obtained.